length and complexity of the labeling procedure and the limited availability and expense of the radionuclide. However, because of its potential diagnostic use, it is anticipated that this test will be more widely available in the future.

MYRA V. DRICKMAN, MD
JUDITH G. ROSE, MD

REFERENCES

Thakur ML, Coleman RE, Mayhall CG, et al: Preparation and evaluation of ^{111}In-labeled leukocytes as an abscess imaging agent in dogs. Radiology 119:731-732, Jun 1976

Doherty PW, Bushberg JT, Lipton MJ, et al: The use of indium-111-labeled leukocytes for abscess detection. Clin Nucl Med 3:108-110, Mar 1978

Knochel JQ, Koehler PR, Lee TG, et al: Diagnosis of abdominal abscesses with computed tomography, ultrasound, and ^{111}In leukocyte scans. Radiology 137:425-432, Nov 1980

Detection of Acute Myocardial Infarction by Pyrophosphate ^{99m}Tc Scintigraphy

SIX YEARS AGO the use of scintigraphy with pyrophosphate labeled with technetium 99m was introduced as a method to detect acute myocardial infarction (AMI). Subsequent experience has substantiated the initial reports of Bonte and Parkey, and a sensitivity in the range of 90 percent for detecting acute infarction has been observed. Ideally the study is done 36 to 48 hours after infarction has occurred, but positive studies have been reported during the first 24 hours. An early negative study should be followed up with a repeat test two to three days later.

Like most sensitive tests, this method is relatively nonspecific. For example, ventricular aneurysms, unstable angina, calcified valves and pericarditis have produced positive test results. Varying degrees of specificity can be attained, however, by grading the studies according to the pattern as well as the intensity of the activity in the myocardium. The measurement of 90 percent sensitivity for diagnosing AMI is based on a grading by intensity level as the only criterion for determining positive findings. If the pattern of cardiac activity is also graded as either diffuse throughout the myocardium or localized to a specific wall of the myocardium, then the sensitivity decreases but the specificity increases considerably. In a coronary care unit two thirds of the patients with AMI will have a localized pattern of activity on the scintigrams. The specificity of this finding is 95 percent. Over a fourth of the patients will have the highest intensity grade in addition to the localized pattern, and in these patients specificity will be 99 percent.

Myocardial scintigraphy using pyrophosphate ^{99m}Tc does not replace electrocardiography and should not be the first test ordered in evaluating a patient with chest pain. However, in those patients for whom a diagnosis remains uncertain, pyrophosphate scintigraphy can be extremely useful. In attempting to rule out AMI, a negative study offers a 90 percent probability that this diagnosis can be excluded. However, a localized pattern of the highest intensity grade is virtually diagnostic of AMI, and a localized pattern alone is very strong but not absolute evidence for AMI.

KENNETH P. LYONS, MD
HAL OLSON, MD

REFERENCES

Poliner LR, Buja LM, Parkey RW, et al: Clinicopathologic findings in 52 patients studied by technetium-99m stannous pyrophosphate myocardial scintigraphy. Circulation 59:257-267, Feb 1979

Lyons KP, Olson H, Aronow W, et al: Sensitivity and improved specificity of a localized pattern of ^{99m}Tc pyrophosphate myocardial scintigraphy for the diagnosis of acute myocardial infarction. J Nucl Med 20:660, Jun 1979

Bonte FJ, Parkey RW, Graham KD, et al: A new method for radionuclide imaging of myocardial infarcts. Radiology 110:473-474, Feb 1974